

## Patent Abstracts of Japan

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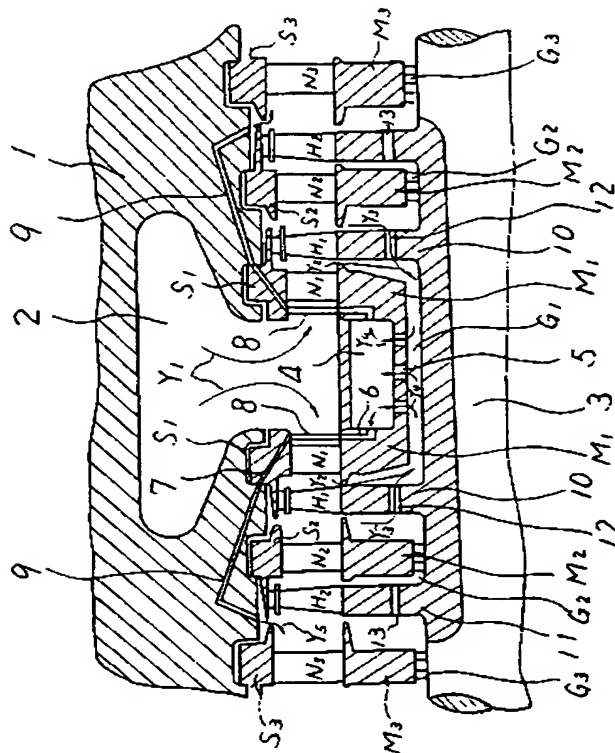
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TITLE : STEAM TURBINE



ABSTRACT : PURPOSE: To suppress the thermal fatigue of the rotor of a steam turbine employing a reheating cycle, by causing the mixture of leaking steam at the outlet ports of the inner rings of first-stage nozzle sections and that at the outlet ports of the butts of first-stage blades to flow as cooling steam on the surface of the rotor.

CONSTITUTION: Reheated steam of high temperature is conducted from an inlet opening 2 so that the steam is divided into two directions  $Y_1$ . The divided portions of the steam flow through first-stage nozzles  $N_1$  so that the steam portions are accelerated. The steam portions then flow on the blades  $H_1$  of a rotor 3 to perform work. After that, the steam portions flow to downstream nozzles  $N_2$ ,  $N_3$  and blades  $H_2$ . In that case, the surface of the rotor 3 is cooled by reheated steam of lower temperature than reheated steam portions  $Y_2$ – $Y_5$ . Since the temperature of the steam  $Y_3$  which has performed work while flowing on the first-stage blades  $H_1$  drops much, the mixture of leaking steam  $Y_2$  from the first-stage nozzles  $N_1$  and that  $Y_3$  the first-stage blades  $H_1$  has a slightly lower temperature than the reheated steam  $Y_1$  at the inlet opening 2 of a medium-pressure turbine. For that reason, the surface of the rotor 3 is cooled by the mixture conducted through a gap  $G_1$ .

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